



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/317,056	05/24/1999	YASUTAKA NAKASHIBA	NEYM16.133	8595

7590 12/23/2003
Katten Muchin Zavis Rosenman
575 Madison Avenue
New York, NY 10022-2585

EXAMINER

GENCO, BRIAN C

ART UNIT	PAPER NUMBER
----------	--------------

2615

DATE MAILED: 12/23/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/317,056

Applicant(s)

NAKASHIBA, YASUTAKA

Examiner

Brian C Genco

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,6,9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 15
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Drawings

The drawings are objected to because a clear illustration of the first embodiment of the present invention is not shown. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. Note the interview summary Paper No. 15.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,696,021 to Kawahara et al.) in view of (Applicant's admitted prior art).

In regards to claim 1 Kawahara et al, herein Kawahara, discloses a method for driving a solid-state image pickup device which stores, in a plurality of photo-electric conversion units (element 1 of Fig. 1A), signal charges corresponding to an incident light during a prescribed time period, each of said photo-electric conversion units being provided with an overflow drain (OFD) structure (e.g., elements 2 and 2' of Figs. 2B and 4A-4G), excludes surplus charges by an electric potential barrier (e.g., electric potential barrier 8 formed by element 6' of Fig. 2B, wherein potential barrier 8 excludes surplus charges as shown in Fig. 4B by performing a reset operation and as shown in Fig. 4E by excluding charges above a saturation level set by the voltage V_I on gate 6' of Fig. 2B; column 5, lines 47-59; column 6, lines 3-19), said electric potential barrier being maintained between said OFD structure and each of said photo-electric conversion units (Examiner notes that the electric potential barrier 8 is situated between the

photoelectric conversion unit and the OFD structure 2'), reads out said signal charges by grouping said photo-electric conversion units into a prescribed number of regions (e.g., 1 in this case), and outputs image signal from all of the photo-electric conversion units by repeating the read-out procedures, which comprises the steps of:

raising up said electric potential barrier (e.g., as shown in Figs. 4F and 4G the electric potential barrier 8 is raised up);

starting reading out said signal charges (e.g., column 6, lines 24-30).

Kawahara does not disclose "cutting off said incident light by a cut off means such as a mechanical shutter," however, as the applicants admitted prior art discloses the use of a mechanical shutter to cut off incident light before reading out the signal charges (page 3, lines 13-16) for the very well known and established reason of eliminating the continual build up of excess charge by the photo-electric conversion units. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have used applicants admitted use of a mechanical shutter in Kawahara's invention in order to eliminate the continual build up of excess charge by the photo-electric conversion units.

In regards to claim 2 applicant admits, on the 4th page of the Information Disclosure Statement filed March 14, 2002, that "how much of an overflow barrier OFB potential barrier difference to secure is nothing more than a design matter that can suitably be determined by one skilled in the art according to the properties, etc. of the solid-stage pickup element that is used." According to this teaching it is only a matter of design choice to increase the potential barrier difference "by a voltage greater than 0.4 V" according to "the properties, etc. of the solid-stage pickup element that is used."

Art Unit: 2615

In regards to claim 9 see examiners notes on the rejection of claim 1. Kawahara discloses a horizontal overflow drain as shown in Figs. 4A-4G under elements 2 and 2'.

In regards to claim 10 see examiners notes on the rejection of claims 2 and 9.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,696,021 to Kawahara et al) in view of (Applicant's admitted prior art) in further view of (USPN 5,903,021 to Lee et al).

In regards to claim 5 see examiners notes on the rejection of claims 1 and 9. Note that Kawahara does not teach to have a vertical OFD. Applicant's admitted prior art does teach to have a vertical OFD, however there is no explicit motivation in applicant's admitted prior art to use applicant's admitted vertical OFD in Kawahara's invention. Lee et al, herein Lee, teaches that either a lateral or vertical OFD can be used where in using a vertical overflow drain uses less photodetector area and thus increases the fill factor (column 6, lines 40-56 Lee). Therefore it would have been obvious to one of ordinary skill in the art to have used a vertical OFD in Kawahara's invention instead of a lateral OFD in order to increase the fill factor.

In regards to claim 6 see examiners notes on the rejection of claims 2 and 5.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Thursday 7:30am to 4:30 pm and every other Friday 7:30am to 3:30pm.

Application/Control Number: 09/317,056

Art Unit: 2615

Page 5

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 703-308-4357.

Brian C Genco
Examiner
Art Unit 2615

December 15, 2003

A handwritten signature in black ink, appearing to read 'Andrew Christensen', is written over a horizontal line.

ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600